Freight Railroads in North America

- BNSF
- CN
- CP
- CSX
- FXE
- KCS/KCSM
- NS
- UP
- Other RRs

ASSOCIATION OF AMERICAN RAILROADS
General Characteristics of North American Freight Railroads

- Vast majority privately-owned
- Typically, the same company owns the track and operates trains over it
- One railroad does not have automatic access to another railroad’s tracks
- Little government funding; income is from freight revenue
- Don’t carry passengers
U.S. Railroad Commodity Mix - 2012

Coal
$14.7 bil.,
727 mil. tons

Petrol. & Chemicals
$12.7 bil.,
258 mil. tons

Intermodal*
$14.6 bil.,
135 mil. tons

Minerals & mineral products
$4.3 bil.,
176 mil. tons

Lumber & paper
$3.8 bil.,
59 mil. tons

Ores & metals
$3.3 bil.,
125 mil. tons

Autos & auto parts
$4.9 bil.,
26 mil tons

Food
$5.4 bil.,
108 mil. tons

Grain - $4.8 bil.,
144 mil. tons

Total
$69 billion
1.8 bil. tons

*Some intermodal is also included in individual commodities. Data are Class I railroads only. Source: AAR (FCS)
Railroads and the Economy Are Tightly Intertwined

Manuf. Output vs. Rail Carloads Excl. Coal & Grain

bars = manuf. output (2007=100, left scale)
line = rail carloads (right scale)

*Data are seasonally adjusted. Source: Federal Reserve, AAR
Total U.S. Rail Carloads + Intermodal Units

(average weekly originations)

Excludes U.S. operations of Canadian railroads.
Source: AAR Weekly Railroad Traffic / Rail Time Indicators
U.S. Rail Intermodal Traffic
(Containers and Trailers)

(average weekly originations)

Excludes U.S. operations of Canadian railroads.
Source: AAR Weekly Railroad Traffic / Rail Time Indicators
U.S. Rail Carloads of Coal

(average weekly originations)

*Chemicals; paper; metal products; autos; crushed stone & gravel; metallic ores; and stone & glass products. Excludes U.S. operations of Canadian railroads. Source: AAR Weekly Railroad Traffic
Originated Carloads of Crude Oil on U.S. Class I Railroads

<table>
<thead>
<tr>
<th>Year</th>
<th>Carloads</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>5,912</td>
</tr>
<tr>
<td>2008</td>
<td>9,500</td>
</tr>
<tr>
<td>2009</td>
<td>10,840</td>
</tr>
<tr>
<td>2010</td>
<td>29,605</td>
</tr>
<tr>
<td>2011</td>
<td>65,751</td>
</tr>
<tr>
<td>2012</td>
<td>233,819</td>
</tr>
<tr>
<td>2013</td>
<td>407,761</td>
</tr>
</tbody>
</table>

*estimate based on first three quarters annualized   Source: AAR
Volume Must be Carefully Managed to Maintain a Fluid Network

- As volume on rail networks approaches 100% of theoretical capacity, fluidity of the network deteriorates.
- If volume offered exceeds 100% of theoretical capacity, maximum throughput capability actually declines.
- “Comfortable” capacity is generally about 70% to 80% of maximum theoretical capacity.
- Both total and average unit cost increases rapidly after “comfortable” capacity is exceeded.
Input Factor Cost History
1990 - 2011: Rail Production Input Factor Cost Trends

Source: R-1 Reports to STB; Rail Cost Recovery Index Publication
# Current Weight of Cost Components

<table>
<thead>
<tr>
<th>Cost Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor</td>
<td>31.2%</td>
</tr>
<tr>
<td>Fuel</td>
<td>22.3%</td>
</tr>
<tr>
<td>Materials &amp; Supplies</td>
<td>4.9%</td>
</tr>
<tr>
<td>Equipment Rents</td>
<td>5.6%</td>
</tr>
<tr>
<td>Depreciation</td>
<td>11.9%</td>
</tr>
<tr>
<td>Interest</td>
<td>2.0%</td>
</tr>
<tr>
<td>Other</td>
<td>22.1%</td>
</tr>
</tbody>
</table>

Source: Quarterly RCAF Filing, Second Quarter 2014
1990 - 2011: Rail Cost Adjustment Factor (All Inclusive Index)

Cost Index = Rail Cost Adjustment Factor (RCAF)

Source: R-1 Reports to STB; Rail Cost Recovery Index Publication
Rail Cost Adjustment Factor (RCAF) vs. Consumer Price Index (CPI)

[Index 2000 = 100]

*The RCAF measures changes in the price levels of inputs to railroad operations. Data are averages of quarterly values for each year. Source: AAR, BLS*
1990 - 2011: Cost and Price Trends

Price measured as Revenue per Revenue Ton-Mile

Source- R-1 Reports to STB; Rail Cost Recovery Index Publication, STB Waybill Sample
Why Use the Ton-Mile as the Primary Price Measure?

Per Car Price Measure – Ignores both increase in average capacity and increasing length of haul.
Per Ton Price Measure – Ignores increasing length of haul.

Source: R-1 Reports to STB; Rail Cost Recovery Index Publication, STB Waybill Sample
Recent RR Rate Increases Largely a Function of Higher RR Input Costs

RR Cost Recovery Index* vs. RR Rates**
(Index 2003 = 100)

*The Railroad Cost Recovery Index measures changes in the price levels of inputs to railroad operations. Data are averages for all commodities for Class I railroads.

**As measured by average revenue per ton-mile for all commodities. Source: AAR
1990 - 2011: Commodity Price Trends

Price measured as Revenue per Revenue Ton-Mile

Source: R-1 Reports to STB; Rail Cost Recovery Index Publication, STB Waybill Sample
1990 - 2011: Commodity Price Trends

Price measured as Revenue per Revenue Ton-Mile

Source: R-1 Reports to STB; Rail Cost Recovery Index Publication; STB Waybill Sample
1990 - 2011: Commodity Price Trends

Price measured as Revenue per Revenue Ton-Mile

Source: R-1 Reports to STB; Rail Cost Recovery Index Publication, STB Waybill Sample
Productivity: Key to Improved Rail Network Performance
Overall Freight Railroad Productivity

(revenue ton-miles per constant dollar operating expense*)

*Using this measure, productivity can be negatively affected when railroad input costs (e.g., fuel) increase, as they have in recent years. Source: AAR
Overall Freight Railroad Productivity Excluding Fuel

(revenue ton-miles per constant dollar operating expense*)

*excludes fuel. Source: AAR
Class I Railroad Employment

Source: AAR
Revenue Ton-Miles Per Employee

Data are for Class I railroads. Source: AAR
Sharp Increase in Rail Traffic Density

(millions of revenue ton-miles per mile of railroad)

Up 238%

'M80 '82 '84 '86 '88 '90 '92 '94 '96 '98 '00 '02 '04 '06 '08 '10 '12

Miles = route-miles owned  Data are for Class I railroads.  Source: AAR
High Density* Rail Miles Have Increased

*(Track with freight density of at least 20 million gross ton-miles. Excludes way and yard switching tracks. Source: AAR)
The average freight train carried a near-record 3,458 tons of freight in 2012, up 56% since 1980 and up 18% since 2000.

Data are for Class I railroads. Source: AAR
Revenue Ton-Miles Per Locomotive

Data are for Class I railroads. Source: AAR
Freight Rail Fuel Efficiency Is Up 102% Since 1980

(revenue ton-miles per gallon)

Source: AAR
Fuel Use vs. Volume Handled

(1980 = 100)

*in freight service  volume = revenue ton-miles.  Source: AAR
How Have the Productivity Benefits Been Distributed?

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Customer Share</td>
<td>161%</td>
<td>74%</td>
<td>127%</td>
<td>-37%</td>
<td>85%</td>
</tr>
<tr>
<td>Railroad Share</td>
<td>-61%</td>
<td>26%</td>
<td>-27%</td>
<td>137%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Profitability and Investment
Rail Profits – Only Recently Becoming Average

Return on Equity: Freight RRs vs. Fortune 500

Return on equity = net profit / shareholders' equity.  Source: AAR, Fortune magazine
The four largest U.S. freight railroads combined need an asset base more than five times that required by UPS to generate only moderately more revenue. In order for the four railroads to have been as profitable as UPS (measured by return on assets) in 2013, their net income would have needed to be $22.8 billion.

### UPS vs. Four Largest U.S. Freight RRs ($ billions)

<table>
<thead>
<tr>
<th></th>
<th>UPS</th>
<th>RRs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>$55.4</td>
<td>$67.2</td>
</tr>
<tr>
<td>Net income</td>
<td>$4.4</td>
<td>$12.0</td>
</tr>
<tr>
<td>Avg. total assets</td>
<td>$36.2</td>
<td>$189.0</td>
</tr>
<tr>
<td>Profit margin</td>
<td>7.9%</td>
<td>17.8%</td>
</tr>
<tr>
<td>Return on assets</td>
<td>12.1%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

Data are 2013. Source: company 10-Ks
Close Correlation Between RR Earnings and Reinvestments

Net income (left scale, $ bil)

Rail spending on infrastructure and equipment* (right scale, $ bil)

*Capital spending plus maintenance expenses. Data are current dollars and are for Class I railroads. Source: AAR
Record Investments in Recent Years Despite the Economy

Railroad Spending on Infrastructure and Equipment* ($ billions)


*Capital spending + maintenance expenses. Data are for Class I railroads. Source: AAR
Railroad Capital Spending
($ billions, current dollars)

Data are for Class I railroads.  Source: AAR
Spending by U.S. Freight Railroads on Infrastructure

Data are for Class I railroads.  Source: AAR
Spending by U.S. Freight Railroads on Equipment

($ billions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total spending</th>
<th>Maintenance expenses</th>
<th>Capital spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>$7.6</td>
<td>$6.3</td>
<td>$1.3</td>
</tr>
<tr>
<td>2004</td>
<td>$8.1</td>
<td>$6.8</td>
<td>$1.3</td>
</tr>
<tr>
<td>2005</td>
<td>$7.9</td>
<td>$6.9</td>
<td>$1.0</td>
</tr>
<tr>
<td>2006</td>
<td>$8.7</td>
<td>$7.2</td>
<td>$1.5</td>
</tr>
<tr>
<td>2007</td>
<td>$9.5</td>
<td>$7.3</td>
<td>$2.2</td>
</tr>
<tr>
<td>2008</td>
<td>$9.7</td>
<td>$7.3</td>
<td>$2.3</td>
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<tr>
<td>2009</td>
<td>$9.1</td>
<td>$6.5</td>
<td>$2.6</td>
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<td>2010</td>
<td>$8.7</td>
<td>$6.8</td>
<td>$1.9</td>
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<tr>
<td>2011</td>
<td>$10.8</td>
<td>$7.2</td>
<td>$3.7</td>
</tr>
<tr>
<td>2012</td>
<td>$11.5</td>
<td>$7.2</td>
<td>$4.3</td>
</tr>
</tbody>
</table>

Data are for Class I railroads.  Source: AAR
Net Results
Staggers Act: An Unqualified Success

Revenue – up 3%
Volume – up 88%
Productivity – up 135%
Rates – down 42%

Staggers Act Passed Oct. 1980

(index 1981 = 100)

Source: AAR
Finally Closer to Earning Cost of Capital

Class I RR Cost of Capital vs. Return on Investment

Note: In 2006, the Surface Transportation Board significantly changed the method by which it calculates the rail industry cost of capital.  

p – preliminary  
Source: STB